

Translation of numbered elements of DE 19957306

Reference no.	German term	English term
1	Ventilgehäuse	valve housing
1a	Ventilgehäuseteil	valve housing part
1b	Ventilgehäuseteil	valve housing part
1c	Verbindungsöffnung	connection opening
1d	erste Sitzfläche	first seat surface
1d*	Auswulstungen	bead
1e	zweite Sitzfläche	second seat surface
1e*	Auswulstungen	bead
1f	Verbindungsweg	connection path
1g	oberen Gehäuseöffnung	upper housing opening
1h	Ringsitzfläche	annular seat surface
2	Schliessglied-Einheit	closure member unit
2a	ersten Verschlusssteil	first closing part
2b	zweiten Verschlusssteil	second closing part
2c	Ringsitzflächen	annular seat surface
2d	Ringsitzflächen	annular seat surface
2e	membranförmiges Mittelteil	membrane shaped intermediate part
2f	Balg	bellows
2f*	dritte Membran	third membrane
2g	Anschlussflansch	coupling flange
2g*	Anschlussflansch	coupling flange
2h	Kragen	collar
2i	Befestigungsteil	attachment part
2k	Verschlussplatte	closing plate
2l	Dichtelement	sealing element
2m	Dichtfläche	sealing surface
3	erster Befestigungseinsatz	first mounting insert
3a	ersten Befestigungsplatte	first mounting plate
3b	ersten Befestigungsmuffe	first mounting sleeve
4	zweites Befestigungsteil	second mounting part
4a	zweite Befestigungsplatte	second mounting plate
4b	zweite Befestigungsmuffe	second mounting sleeve
5	Hohlstange	hollow rod
5*	dritten Stange	third rod
5a	Gewindezapfen	threaded pin
6	innenseits geführte Stange	internally extending rod
6a	Gewindezapfen	threaded pin
6a*	verlängerten Gewindezapfens	elongated threaded pin
7	Leckagehohlraums	leakage cavity
8	elastischen Druckring	elastic thrust ring
l	strichpunktformig dargestellte Kontur	structure shown by slash-dot-line
S	Dichtungsspalt	sealing slot

English translation of DE 199 57 306 A1

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The invention concerns a closing member unit for a aseptisches Doppelsitzventil after the generic term of the requirement 1.

The classical Doppelsitzventil is characterised by it that it is equipped with two from each other independent, movable closing members relatively to each other, independently of those the propelled, the so-called. active closing member, with the opening procedure after a certain partial stroke at dependently the propelled, that so-called. passive closing member, to the plant and this comes during the further opening movement also into the Offenstellung transferred. The plugs of the two closing members include both in the closing and in the Offenstellung a leakage cavity between itself, which exhibits one communications with the environment at least in the closing position at least floppelsitzventils. With the plugs connected and to a drive the leading bars are led out either on a side of the Doppelsitzventils from the which is applicable valve housing part (GM 77 02 634) or the two bars are advanced on each other opposite sides from the respective valve housing part to the assigned drive (DE 24 56 675 A1). The connection of the leakage cavity with the environment of the Doppelsitzventils can take place close-member-laterally, such that the communications are led out from the Doppelsitzventil to the leakage cavity within the bars of the closing members implemented and on a side (GM 77 02 634), or however at least one of the communications between the leakage cavity and the environment of the Doppelsitzventils is implemented in a pipe, which is led with one of the closing members connected and by the assigned valve housing part into the environment of the Doppelsitzventils (DE 25 32 838 C3).

The aforementioned classical Doppelsitzventile worked everywhere, where so-called hostile liquids, as for example food and cleaning agents, surely from each other to be separated to have and where the requirements to the sterility and the sterility of such products beyond normal requirements not to go, D. h. where germ-poor conditions are given and sterility are not demanded and/or. sterile operating conditions to be present must.

During high requirements of the sterility and the sterility of the products, in particular under aseptischen conditions, as for example in the Pharmaindustrie, in the bio as well as the genetic engineering and also with the production of sterile products, which should be durable over longer time, like H-Milch, yogurt and other comparable products, the aforementioned classical Doppelsitzventile, which have an only deputy character in the selection met here, are usually unsuitable. This essentially results from the fact that on the one hand the bars of the closing members are led out over dynamically stressed seals from the valve housing parts into the environment, and that on the other hand with each shifting process product arrives into the leakage cavity between the two plugs (so-called. Switching leakage), which comes there over the communications or the communications to the environment with the ambient air into contact. A such contact of the product with the environment is unwanted or inadmissible. Over the dynamically stressed seal product is kidnapped into the seal gap (so-called. ?Elevator effect?). A germinating and/or a contamination with the ambient air can come there to, so that with itself the following throws the germinated and/or contaminated product into the product area are backtransported and a Reinfektion take place there can.

A aseptische double seat valve device, which becomes fair at least the aseptischen requirements which can be demanded, is well-known from the DE 42 43 111 A1. There are both the execution and Hohlstange of the implemented external valve rod in the range between the assigned plug and their execution by the valve housing and the range between the two plugs in each case with a diaphragm, a so-called. Bellows diaphragm, bridges. By this arrangement neither product can arrive into the seal gap between valve rod and valve housing during the throw product of the leakage cavity into the ranges between the bars is still registered, where the danger of a contamination with outside air would exist at least in principle. The switching leakage is prevented nor reduced with the well-known valve neither. The well-known aseptische double seat valve device is relatively complex developed regarding the closing member arrangement and both the diaphragm. With the used bellows diaphragms it usually concerns metallic construction units, which must be connected at their respective plug-lateral end with the plug concerned material-conclusively. The housing-lateral end of the diaphragm is to be connected in the same way with a housing plug. Beyond that the metallic plugs with seat supports must be implemented, which are embedded for their part in slots. These slots represent in principle critical ranges of the valve, since a germinating can take place here, if the seal column are not cleaned perfectly.

With Doppelsitzventilen also as seat plate trained plugs is well-known to reduce the problem of the so-called switching leakage by the fact that the leakage cavity is locked first to the environment, before the independently propelled plug leaves its seat face. The such defined leakage cavity is subjected during the following opening movement of the Doppelsitzventils from the which is applicable valve housing part with product, a drain of a larger volume, than is given by the defined leakage cavity, cannot not take place. A such the switching leakage limiting Doppelsitzventil is well-known from the DE 28 18 787 C2. It exhibits a so-called auxiliary valve between the two closing members of the Doppelsitzventils designed as seat plates. The auxiliary valve consists of two relatively to each other mobile valve disks. Everyone this valve disk exhibits a sealing seat. The valve disk lying above, which forms also the independently propelled first closing member of the Doppelsitzventils at the same time, rests upon with its sealing seat on the valve housing. The valve disk of the auxiliary valve, the so-called auxiliary valve plate lying down, comes to a partial stroke with its sealing seat at the dependently propelled second closing member of the Doppelsitzventils to the plant. From the two sealing seats of the aforementioned valve disks of the auxiliary valve a diaphragm proceeds, which limits the gap between the two valve disks of the auxiliary valve flexibly bridged and at the same time also the leakage cavity formed between the two closing members of the Doppelsitzventils in its closing position.

With that the two relatively to each other mobile valve disks of the auxiliary valve bridging diaphragm two different kinds is reached: On the one hand the leakage cavity is defined for the environment of the Doppelsitzventils, so that the switching leakage is limited to the volume of this in such a manner defined leakage cavity. On the other hand the diaphragm has a simple, smooth surface, so that the part of the leakage cavity, contrary to which appropriate range with the Doppelsitzventil in accordance with DE 42 43 111 A1, limited by this diaphragm, a cleaning-friendly surface relief and - geometry exhibits. The diaphragm-lateral bound of the leakage cavity is on the one hand aerodynamically clean, on the other hand one it prevents a determining of larger particles from the product.

From the WHERE 98/54 493 a Doppelsitzventil, in particular for aseptische application purposes, is well-known, with that the two independently axially adjustable plugs, as this with the auxiliary valve in accordance with DE 28 18 787 G2 the case is similar, by means of a diaphragm is bridged. The latter is, after the model from the DE 28 18 787 C2, with its two final sections fastened to the two plugs in

each case sealing, whereby adjacent on each final section a sealing surface is trained, which is press in slightlyable to the associated valve seat by the assigned plug. This well-known Doppelsitzventil is the basis the task to improve the arrangement of the leakage cavity so that the substance which can be processed can happen aerodynamically cleanly, even if larger particles are contained in it. To that extent also agreement with by the DE the advantages attainable exists 28 18 787 C2. While with the Doppelsitzventil in accordance with DE 28 18 787 C2 the diaphragm is implemented as einstückiges, circularly circulating out-arranged, flexible sealing element, which carries out one with the axial movement of the auxiliary valve plate only in same direction oriented stretch, einstückige, circularly circulating out-arranged, flexible sealing element is with the Doppelsitzventil in accordance with WHERE 98/54 493 in such a manner implemented that it possesses its both final sections a connected bellows section.

With both well-known Doppelsitzventilen the diaphragm-lateral bound of the leakage cavity is aerodynamically clean and out-arranged cleaning friendly. Beyond that the switching leakage is limited in the course of the opening movement of the Doppelsitzventils with both, whereby this delimitation is given by the catch of of the close-member-laterally implemented communications between leakage cavity and environment (DE 28 18 787 C2) or by the catch of the appropriate of the housing-laterally implemented communications (WHERE 98/54 493).

Both Doppelsitzventile are however with disadvantage afflicted, which consists of the fact in the fact that the respective diaphragm, which bridges relatively to each other the relocatable plugs with its respective Endabsohnitt is clamped in the assigned plug. Formed at this Einspannstellen between diaphragm and plug a sealing place, which static nature is, in everyone of the cases however a gap forms in each case, into the product to penetrate can. In particular by the fact support is given to this penetration that the diaphragm at its clamping place is exposed to a milling demand due to the closing and opening movement of the valve, expand dynamically those the gap or narrowed. Thus at least critical ranges in the product area represent the column between the diaphragm and the plugs in the context of aseptischer applications of the which are used Doppelsitzventile.

From the range of aseptischer stroke valves with a simply sealing plug is a so-called. Closing member unit admits (EP 0,508,658 B1), with which a plug with a housing-lateral pick-up flange, which the valve rod propelling the closing member is passed through, by a diaphragm is connected. Plug, which diaphragm and pick-up flange form einstückige unit, whereby the material, of which this unit is made, possesses self sealing characteristics.

On the basis of that disadvantages managing specified of the state of the art the available invention the task is not the basis to create a closing member unit for a aseptisches Doppelsitzventil which is simple in its structure, without seals gets along and critical ranges in the leakage cavity, in the product-subjected valve housing and at bar executions in the valve housing exhibits.

This task is solved by the characteristics of the requirement 1. Favourable arrangements of the suggested Doppelsitzventils are the subject of the Unteransprüche.

Since the suggested closing member unit is on the other hand uniformly implemented from a material on the one hand as einstückige unit and, which possesses flexible and sealing characteristics, the seals within the seat range can and within the range of the sealing of the pick-up flange with the valve housing, which in principle always are problematic under sanitary criteria, are void. Further on the one hand the junction points between the plugs, necessary after the state of the art for such closing member units, are void and to this attached diaphragm and on the other hand the junction points at the diaphragm within the range of the closing member, bridging the valve rod, on the one hand and the pick-up flange on the other hand. The relative mobility of the two closing members necessary with a

Doppelsitzventil and/or. with this connected plugs is to each other by the diaphragm bridging both plugs in each case guaranteed. This diaphragm can consist of only one bellows fold or also of several of such bellows folds. As material preferably polytetrafluorethylene (ptfe, for example teflon) comes into question, there it as positive characteristics high elasticity, chemical ruggedness and a long life span, however under acceptance of a relatively large plastic ductility (strong inclination to ?flowing? and/or. ?Creeping?), exhibits. For the introduction of the placing and high-level personnel an attachment employment form and/or actuated is embedded in each case in the two plugs.

The production of the closing member unit becomes to that extent relatively simple and thus economical, since their blank holistic is formed out together with the embedded attachment employments in a form. Subsequently, by cutting treatment of the blank the final form is made. The two plugs are to each other positioned in a minimum distance, which is to each other determined by the blocked situation of the attachment employments, and in this situation the splinter-giving shaping of the closing member unit up to its final execution takes place.

So that the problems, which arise in connection with the tendency to creep of the material polytetrafluorethylene, can be controlled surely, a further training of the suggested closing member unit plans that the first diaphragm at its free end is trained in form of a pick-up flange with a conical sealing surface, which lies close against a complementary Ringsitzfläche of the housing. This pick-up flange permits it to affect the actually critical imbedding the diaphragm within the housing range in favourable way.

The first formative measure with view of the pick-up flange consists of as this plans a favourable arrangement that the forces resulting from the valve-stroke-conditioned deformation of the bellows between closing member and pick-up flange and/or the respective pressure in the housing are taken up there in the valve housing, where they develop originally. A bending moment-free admission of these forces is reached with the suggested solution by it that the pick-up flange of the closing member unit within the range of its connection with the diaphragm (bellows) exhibits pushing mounting element a housing-laterally indirectly away, the arising forces on shortest way of the bellows and/or. the pick-up flange into the housing transfers. A Durchleiten of these forces as transverse forces by itself the pick-up flange to the clamping place, extending outward in radial direction, within whose range the conical sealing surface and a critical seal gap are present, how this is for example with the well-known valve in accordance with EP 0,508,658 B1 the case, thereby avoided. The seal gap between pick-up flange and valve housing stressing bending moment does not arise with the suggested solution practically.

Suggested mounting element takes up axial forces, which suppresses effective for example by aspect ratio of the bellows into the closing position of the stroke valve or through in the interior of the housing in relation to the environment of the stroke valve is caused.

The second measure consists of the fact that the pick-up flange is reduced in the range of its conical sealing surface to the firmness-conditioned requirements corresponding a minimum wall thickness in form of a membranförmigen sealing element. A material accumulation of the creepable bellows material within the critical sealing range is avoided by this measure.

So that within the range of the membranförmigen sealing element at the pick-up flange the necessary pre-loading and thus the necessary seal contact with the complementary Ringsitzfläche in the valve housing remain, it is further in accordance with a favourable execution form intended that the membranförmige sealing element on its exhibits the conical sealing surface turned away side few a linked up flexible thrust ring, which presses the sealing surface on the complementary Ringsitzfläche. The flexible thrust ring works practically like a feather/spring, which keeps the conical sealing surface,

also in case of creeping the seal material here, lasting under pre-loading and thus the expansion of the seal gap with that managing described disadvantages reliably prevented.

Those the respective plug assigned bar is connected with latter form and/or actuated. An attachment employment is embedded appropriately in each plug, which extends over a mounting plate until far into the peripheral range of the plug and exhibits, in radial direction seen, within the interiorlateral range an attachment sleeve, which makes the connection to the bar assigned in each case. The two altogether first finished attachment employments are brought before sintering and forming out the blank of the closing member unit into its manufacture form.

It turned out as appropriate to determine the end position of the two plugs to each other in its Offenstellung by the fact that the attachment employment of the active plug at that one of the passive plug comes to the plant. In addition, the aforementioned end position can be specified in other place, for example in the control drive of the Doppelsitzventils.

By the limited mobility of the plugs to each other and the possibility, each plug over it assigned the bar, independently of the other one of heading for it is also easily possible to transfer everyone of the two plugs into a partial open position. This is for example necessary if the plugs and their assigned seat faces of a seat cleaning are to be submitted. A seat cleaning is carried out in such a manner that the plug waiting for the seat cleaning is removed around a partial stroke from its seat face, while the other plug on its seat face remains. Those the leakage cavity between the two plugs supplied Reinigungsflüssigkeit is exhausted in this way over at least lockable communications between the leakage cavity and the environment of the Doppelsitzventils.

Also in the closing position of the Doppelsitzventils a cleaning of the leakage cavity is possible, if, as this is likewise intended, the leakage cavity is connected by at least two controllable communications with the environment of the Doppelsitzventils.

If the closing member unit is provided with a further bar also on the control drive facing the side, which is led out from the assigned valve housing also, the possibility results of storing and of leading so far the flying stored closing member unit now reciprocally in the valve housing.

The aforementioned additional bar can be also used for it, a so-called. To make pressure balance at the closing member unit. As well known it results over or negative pressure, forces from the product pressure on the plugs, is, which want to take the plugs off under certain conditions from their assigned seat face. By pressure balance measures, for example by a so-called. Balance pistons, can be activated counter acting forces equal in size, which provide for a balanced force equilibrium at the respective plugs. Thus it can be prevented in the available case prints of the Doppelsitzventils due to a positive pressure in the smaller plug to neighbouring valve housings by the fact that bar the passed through this valve housing is connected to the attack region of the plug appropriate balance piston with one. This balance piston is to be arranged in such a manner under the flexible pick-up flange that the pressures in the valve housing, attacking at the latter, and from this resulting forces on the balance piston are supported.

The closing member unit is simplified, if the two plugs are linked up through in the closing member unit arranged flexibly fitting with springs elements, for example screwing or diaphragm springs, against each other. Thus the valve rod of the independently operated plug can be void.

A further arrangement of the closing member unit plans, the control drives for the individual plug movements both for opening the Doppelsitzventils and if necessary, to train for the partial strokes in the context of the seat cleaning within the closing member unit. With these control drives it can for example around argument-subjected drives or over electromagnetically worked drives to act.

The execution of the suggested closing member unit does not remain limited to those managing as seat plates trained plugs. The two plugs can be implemented also in each case as preferably diameter-same slidegate valve pistons, which find admission in a cylindric seat drilling planned in the valve housing sealing. By suitable Auswulstung within the respective seat range of the seat drilling thereby the sealing becomes opposite the assigned slidegate valve piston, which likewise gets along without separate, discrete seal, since it is implemented from self sealing material, improved.

The plug configuration can consist also of a seat plate and a slidegate valve piston. This arrangement and also that one with two slidegate valve pistons create the conditions for leakage-free or at least leakage-poor switching.

Remark examples of the invention are represented in the design and to follow are described. Show Fig. 1 a middle section by a first execution form of the suggested closing member unit, whereby the independently propelled plug departed around a partial stroke from its assigned seat face and at the other plug, which is still in its closing situation, to the plant came;

Fig. 2 likewise in the middle section a part of the closing member unit in accordance with Fig. 1 within the range of the two plugs, whereby the latters are represented in a situation, which they take to each other in their development condition;

Fig. 3 also in the middle section the suggested closing member unit in a second execution form, with which on both sides the two plugs valve rods are intended, those by the valve housing assigned in each case through and from this is led out and

Fig. 4 a middle section by the suggested closing member unit in a third execution form with two plugs trained as slidegate valve pistons.

A valve housing 1 (Fig. 1) consists of only suggested first and a likewise only suggested second valve housing part 1a and/or. 1b. Both valve housing parts of 1a, 1b are connected by a connection port 1K. In the range of the connection port 1K, adjacent on the first valve housing part of 1a, at this a first seat face 1d is and, adjacent on the second valve housing part of 1b, a second seat face 1e trained. The seat faces 1d and 1e have konusförmige shape, and they serve the admission complementary trained Ringsitzflächen 2c and/or. 2d at a first plug 2a and/or. second plug 2b of a closing member unit 2. The two plugs 2a and 2b are preferably implemented from a material, which possesses flexible and sealing characteristics. Here polytetrafluorethylene (ptfe) is preferably applicable. In the first plug 2a a first attachment employment 3 is embedded, that, in radial direction seen, with a first mounting plate 3a into the external area of the plug 2a extended and innenseits in a first attachment sleeve the 3b ends itself. In the second plug 2b second mounting element 4, in the same way consisting of a second mounting plate 4a and a second attachment sleeve 4b is, intended.

The two plugs 2a and 2b are material-conclusively connected by a membranförmiges center section 2e, which consists of the same material as the plugs 2a, 2b. In first mounting element 3 of the first plug 2a is screwed in a Hohlstange 5 over a spigot 8 and with the second mounting element 4 of the second plug 2b is connected one in the Hohlstange 5 innenseits led bar 6 by a spigot 6a. The Hohlstange 5 and the bar 6 led in it are led across the first valve housing part of 1a into the environment of the Doppelsitzventils.

This execution of the bar 5 in the valve housing 1a is bridged by bellows 2f, which is on the other hand with a pick-up flange 2g connected on the one hand with the first plug 2a and. The latter consists among other things of a closing panel 2c, which oriented an essentially disk-shaped, in one level perpendicularly to the longitudinal axis of the closing member unit 2, radially innenseits from the bellows 2f outgoing development possesses, and it extends so far radially outward that it permits the

development the closing member unit 2 upward to 1g in the first valve housing 1a in connection with a corresponding upper housing opening.

The disk-shaped closing panel 2C is radially aussenseits reduced to the firmness-conditioned requirements corresponding a minimum wall thickness in form of a membranförmigen sealing element 21. The latter is trained in form one toward a complementary Ringsitzfläche 1h in the first valve housing 1a of oriented extension at the closing panel 2C, and it points one with the Ringsitzfläche 1h cooperating conical sealing surface 2m to the latters over a linked up flexible thrust ring 8, which is arranged on that the conical sealing surface 2m of the membranförmigen sealing element 21 turned away side, to the complementary Ringsitzfläche 1h is pressed. The closing panel 2C ends aussenseits in a collar 2h, which finds admission in the first valve housing part of 1a positively.

For the avoidance of a bending moment, resulting from a force couple, which is formed for example by a traction power in the bellows 2f and by the appropriate reaction force within the range of the closing panel 2C, the entire pick-up flange 2g of the closing member unit 2 is provided in the range of its connection with the bellows 2f with one in a not represented housing upper part embodied mounting element 2i. In the represented execution form that is mounting element 2i aussenseits equipped with a thread, preferably with a buttress thread, over which strength and positive connection with the housing upper part is possible. Thus know the traction powers exercised by the bellows 2f on the closing panel 2C directly, without which formation a critical seal gap S between complementary Ringsitzfläche 1h and the membranförmigen sealing element 21 of affecting bending moment, to the housing upper part are introduced and taken up there.

For the removal of leakage cavity 7, in each case in the closing position of the Doppelsitzventils, formed by leakages or for the cleaning one between the plugs 2a, 2b, serves communications 1f trained in the valve housing 1 between the seat faces 1d and 1e. This is appropriately locked over a not represented, controllable catch, which locks preferably concisely with the internal delimitation of the leakage cavity 7. If the leakage cavity 7 in the closing position of the Doppelsitzventils in the flow is to be cleaned, at least further communications between leakage cavity 7 and environment of the Doppelsitzventils are to be implemented apart from the communications 1f.

The paint-punctiformly represented outline I of the two plugs 2a and 2b shows the latters in the Offenstellung of the Doppelsitzventils.

Fig. the two plugs 2a and 2b at its most extensive distance shows 2 from each other, which is possible in the development condition of the plugs 2a, 2b. It is clearly recognizable that the membranförmige center section to each other permits the limited relative motion of the two plugs 2a and 2b necessary for the switching function of the Doppelsitzventils to 2e by its duktile styling.

The second execution form of the suggested closing member unit 2 (Fig. 3) develops from that one in accordance with Fig. by the fact 1 that for example the bar 6 by the second attachment employment 4 by means of an extended spigot 6a* a piece is through-screwed and is connected latter thereby with a third bar 5*, which is led across the second valve housing part of 1b into the environment of the Doppelsitzventils. This bar execution by the second valve housing part of 1b is bridged in the same way, how this is during bar execution in the first valve housing part of 1a the case, over a third diaphragm 2f* designed as bellows. This is on the one hand connected with the second plug 2b and on the other hand with a pick-up flange 2g*. With this solution the closing member unit is 2 on both sides in the assigned valve housing part 1a and/or. 1b stored and led. By arrangement of a not represented compensating piston, which is connected with the bar 5* and which supports the pick-up flange 2g*, a pressure balance with the forces attacking at the closing member unit 2 due to product pressures leaves itself to accomplish.

In Fig. the suggested closing member unit 2 in one represented to 4 from two slidegate valve pistons 2a, 2b existing plug configuration is. For the improvement of the sealing within the respective seat range Auswulstungen 1d* are housing lateral and/or. 1e* intended. Otherwise the plugs 2a, 2b are bridged by a not represented membranförmiges center section, which guarantees the limited relative mobility of the plugs 2a, 2b to each other. The attachment employments 3, 4 are in the represented remark example in such a manner in the self sealing material of the assigned plug 2a and/or. 2b embedded that within the respective seat range a reinforcement of the self sealing material in form of a positive teeth with the respective mounting element 3, 4 results.

Claims,

1. Closing member unit for a aseptisches Doppelsitzventil, - consists relatively to each other of two mobile closing members, from which the independently propelled comes with the opening procedure to a certain partial stroke at dependently the propelled to the plant and the latter during the further opening movement also into the Offenstellung transferred, of which everyone exhibits within the respective seat range a plug and these plugs in the closing position of the Doppelsitzventils limit a leakage cavity between itself, which is connected by at least controllable communications with the environment of the Doppelsitzventils, - is enclosed with with a plug connected and to a control drive bar passed through the valve housing by a first diaphragm and this diaphragm finallaterally in each case on the one hand is directly or indirectly with the plug and on the other hand with the valve housing sealing connected, - with that the range between the two plugs is bridged by a second diaphragm, with which the plugs are connected in each case, and - with that the two plugs and both diaphragm the replaceable closing member unit form, thereby characterized, - that the closing member unit (2) is einstückig and uniformly implemented from a material, which possesses flexible and sealing characteristics, - and that in the first plug (2a) a first attachment employment (3) is and in the second plug (2b) a second attachment employment (4), in each case to the introduction of the placing and high-level personnel, form and/or actuated embedded.
2. Closing member unit according to requirement 1, by the fact characterized that this is made of polytetrafluorethylene.
3. Closing member unit according to requirement 1 or 2, by the fact characterized that the first diaphragm (2f) at its free end is trained in form of a pick-up flange (2g) with a conical sealing surface (2m), which lies close against a complementary Ringsitzfläche (1h) of the housing (1a).
4. Closing member unit according to requirement 3, by the fact characterized that the pick-up flange (2g) is reduced in the range of its conical sealing surface (2m) to the firmness-conditioned requirements corresponding a minimum wall thickness in form of a membranförmigen sealing element (2l).
5. Closing member unit according to requirement 3 or 4, by the fact characterized that the pick-up flange (2g) within the range of the bar (5) pushing a housing-laterally indirectly away mounting element (2i) for the most extensive bending moment-free admission from the valve-stroke-conditioned deformation of the first diaphragm (2f) and/or the respective pressure in the housing (1a) of resulting forces exhibits.
6. Closing member unit according to requirement 4 or 5, by the fact characterized that the membranförmige sealing element (2l) on its exhibits the conical sealing surface (2m) turned away side at least a linked up flexible thrust ring (8), which presses the sealing surface (2m) on the complementary Ringsitzfläche (1h).

7. Closing member unit after one of the requirements 1 to 6, by the fact characterized that in the Offenstellung of the Doppelsitzventils the second attachment employment (4) rests against the first attachment employment (3).

8. Closing member unit after one of the requirements 1 to 7, by the fact characterized that the closing member unit (2) on the control drive facing the side is provided with a third bar (5*), which is bridged led out from the assigned second valve housing (1b) and between the second plug (2b) and the second valve housing (1b) with a third diaphragm (2f*).

9. Closing member unit after one of the requirements 1 to 8, by the fact characterized that the third is trained as balance piston bar (5*) in the range of their execution by the second valve housing (1b), which to large adjusting of thrust forces, which are exercised on the second plug (2b) by in the second valve housing (1b) lining up fluid, is formed.

10. Closing member unit after one of the requirements 1 to 9, by the fact characterized that the plugs (2a, 2b) are against each other linked up through in the closing member unit (of 2) arranged springy elements, preferably screwing or diaphragm springs.

11. Closing member unit after one of the requirements 1 to 10, by the fact characterized that within the closing member unit (2) control drives for the movements of the plugs (2a, 2b) are intended.